



**THUNDER**

AMPLIFIER OWNER'S MANUAL



**THUNDER4122**  
**THUNDER4202**  
**THUNDER4244**

**POWER  
AMPLIFIERS**

## **Introduction**

### **CONGRATULATIONS**

On Your purchase of a new MTX Thunder Amplifier! MTX has long been the industry leader in mobile enclosures and speakers, and we have reached new heights with the development of the new MTX Thunder amplifiers. You couldn't have chosen a more reliable, powerful, or better performing amplifier – In fact, we back up every Thunder amplifier with a three-Year warranty if installed by an authorized MTX retailer (see the warranty statement on page 33).

Your new MTX Thunder amplifier was designed, built and thoroughly tested at our state-of-the-art electronics manufacturing facility in Phoenix, Arizona. We manufacture every amplifier using the latest Intelligent Surface Mount Technology. Some of the advantages of the new design are its significant improvements to the amplifier's electrical and mechanical properties. ISMT devices feature substantially shorter internal and external lead lengths. This reduces stray capacitance and inductance, which results in cleaner and more accurate musical reproduction with significantly less noise interference. The ISMT mounter produces amplifier boards with smaller and lighter components, which are more resistant to vibrations inherent in the automotive environment.

*A word about power ratings. It is important for you to know how they stack up. MTX has chosen the most honest, most conservative way to rate our amps. We show you the RMS power; at 12.5 volts, and dynamic power at 14.4 volts. However, we go above and beyond the call of duty. We test each amplifier. The technician records the "actual" power output, and records this number on your Certified Performance Certificate. The amplifier*

*must meet or exceed the rated specification before we'll ship it. No questions. No exceptions.*

We want to ensure You get continuous high performance from Your MTX Thunder amplifier, so we recommend that you have it professionally installed by Your authorized MTX dealer.

### **HOW TO USE THIS MANUAL**

If You are installing this amplifier Yourself, we recommend that You read the manual cover-to-cover before you install it. Familiarize Yourself with the features and details on the input and output panels. Make sure You have all the equipment You need. Then follow the step-by-step installation instructions included. Sample installation diagrams may be found on our website:

[WWW.MTXAUDIO.COM](http://WWW.MTXAUDIO.COM)

If You have any questions, write or call us:

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4545 E. Baseline Rd.  
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1-800-CALL-MTX  
technical@mtxaudio.com  
www.mtxaudio.com  
Register Your warranty online

## Features

- Unique rubber Insulated Iso-Feet™ (Patent# 5,521,792)
- Nickel-plated, heavy duty terminal block type connectors
- Speaker and low level inputs
- Input select 2CH / 4CH switch on Thunder4244 functions as a built-in Y connector
- Color-coded wire harness for speaker-level input installation
- Smart-Engage™ auto-turn on for easy integration with factory head units
- Built-in, defeatable 18dB/octave HP/LP crossover at 85 Hz
- Thunder4244 Front channel crossover is a defeatable 18dB/octave, high pass, at 85Hz
- Adjustable input sensitivity
- Bridgeable, multi-channel circuit design
- Regulated PWM Mosfet Switching Power Supply
- New, more reliable high powered transformers
- Buffered, isolated outboard daisy chaining multiple amplifiers
- Pure N-Channel Design
- Intelligent Surface Mount Technology
- Class A 100% discrete driver circuit topology
- Real Time Computerized Protection Circuit
- Anti-Shock PCB mounting design
- Acoustically Seamless Turn-On/Turn-Off

## Specifications

### Thunder4122

RMS Power measured at 12.5 Volts DC:  
 30 Watts x2 into a 4 Ohm load with less than 1% THD  
 60 Watts x2 into a 2 Ohm load with less than 1% THD  
 120 Watts bridged into a 4 Ohm load with less than 1% THD

Dynamic Power measured at 14.4 Volts DC:

50 Watts x2 into a 4 Ohm load  
 80 Watts x1 into a 1 Ohm load  
 200 Watts bridged into a 4 Ohm load

Signal to Noise Ratio: 100dB A-Weighted (Referenced to Rated PWR at 1VRMS Input Sensitivity)

Damping Factor: >200

Frequency Response: 20-20,000 Hz  $\pm$  25dB

Defeatable 18 dB/octave crossover at 85 Hz, selectable for high pass, low pass.

Dimensions: 5.63" x 9.75" x 2" (14.3cm x 24.8cm x 5.1cm)  
 7.98" x 9.75" x 2.1" (20.3cm x 24.8cm x 5.3cm) including IsoFeet™

### Thunder4202

RMS Power measured at 12.5 Volts DC:  
 50 Watts x2 into a 4 Ohm load with less than 1% THO  
 100 Watts x2 into a 2 Ohm load with less than 1% THO  
 200 Watts bridged into a 4 Ohm load with less than 1% THO

Dynamic Power measured at 14.4 Volts DC:

85 Watts x2 into a 4 Ohm load  
 140 Watts x2 into a 2 Ohm load  
 280 Watts bridged into a 4 Ohm load

Signal to Noise Ratio: 100dB A-Weighted (Referenced to Rated PWR at 1VRMS Input Sensitivity)

Damping Factor: >200

Frequency Response: 20-20,000 Hz  $\pm$  25dB

Defeatable 18 dB/octave crossover at 85 Hz, selectable for high pass, low pass.

Dimensions: 7" x 9.75" x 2" (17.8cm x 24.8cm x 5.1cm)  
 9.3" x 9.75" x 2.1" (23.6cm x 24.8cm x 5.3cm) including IsoFeet™

### Thunder4244

RMS Power measured at 12.5 Volts DC:

45 Watts x4 into a 4 Ohm load with less than 1% THO  
 60 Watts x4 into a 2 Ohm load with less than 1% THO  
 120 Watts x2 bridged into a 4 Ohm load with less than 1% THO

Dynamic Power measured at 14.4 Volts DC:

55 Watts x4 into a 4 Ohm load  
 100 Watts x4 into a 2 Ohm load  
 200 Watts x2 bridged into a 4 Ohm load

Signal to Noise Ratio: 100dB A-Weighted (Referenced to Rated PWR at 1VRMS Input Sensitivity)

Damping Factor: >200

Frequency Response: 20-20,000 Hz  $\pm$  25dB

Defeatable 18 dB/octave crossover at 85 Hz, selectable for high pass, low pass, or full range on rear channels and high pass or full range for front channels.

Dimensions: 9.2" x 9.75" x 2" (23.4cm x 24.8cm x 5.1cm)  
 11.5" x 9.75" x 2.1" (29.2cm x 24.8cm x 5.3cm) including IsoFeet™

**1. RCA Input Jacks** – These RCA input jacks are for use with source units that have RCA or Line Level Outputs. An independent set of jacks are provided on the Thunder4244 for front and rear stereo inputs. A source unit with a minimum level of 200mV is required for proper operation. The use of high quality twisted pair cables is recommended to decrease the possibility of radiated noise entering the system.

**2. Input Select 2CH / 4CH** – This switch, found on the Thunder4244, is used to match the amplifier's input to the source unit's output so all four channels of the amplifier are driven. If your source unit has 2 outputs (a left and right) connect them to the amplifier's front channel inputs, and place the input select switch in the 2CH position. If your source unit has 4 outputs, (left front, left rear, and right front, right rear) connect them to the amplifier inputs and place the input select switch in the 4CH position. In the 4CH position, the fader on your source unit will operate.

**3. Speaker level Inputs** This input will allow the amplifier to operate from source units with speaker-level outputs. Output speaker leads from the source unit should be tied directly to the wire harness provided with the amplifier.

Wire harness color codes:

Grey / Black = Source units right negative (-)

Solid Grey = Source units right positive (+)

White / Black = Source units left negative (-)

Solid White = Source units left positive (+)

With the Smart-Engage™ auto-turn circuit, a remote turn-on wire is not necessary when connecting the speaker-level input wire harness to a high powered source unit. The amplifier will automatically turn on when music is received.

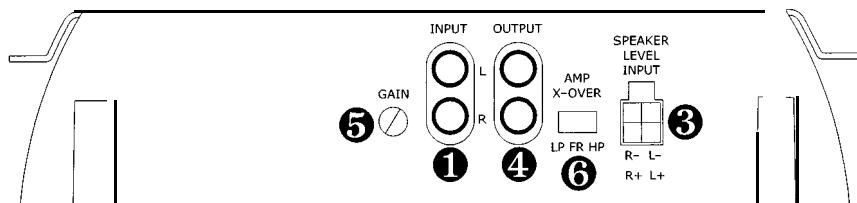
**4. RCA Output** – These RCA outputs allow for a signal to be sent to other amplifiers in a daisy-chain configuration. The RCA outputs on all Thunder4000 series amplifiers will send a full-range signal to additional amplifiers.

**5. Gain Controls** – These controls are used to match the input sensitivity of the amplifier to the particular source unit that you are using. The controls are factory set to 1Vrms. Note that the Thunder4244 has a separate gain control for front and rear channels.

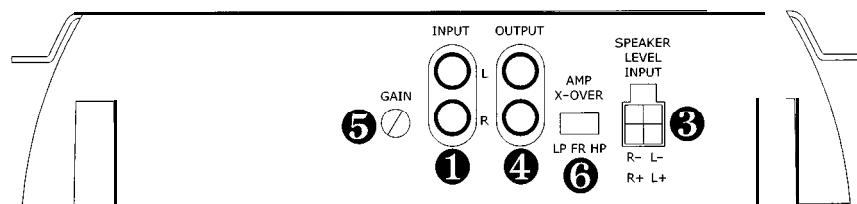
**6. Crossover Select-This** switch controls the type of crossover configuration that you desire. The Thunder 4000 series 2-channel amplifiers include a defeatable 18dB/Octave 85Hz crossover that is high pass/low pass or full range selectable. The Thunder4244 four channel amplifier includes a defeatable 18dB/Octave 85Hz crossover that is high pass or full range for the front channels, and a high pass, low pass or full range for the rear channels.

# Input Panel Lavout

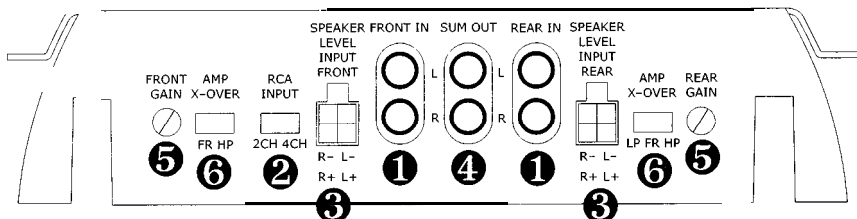
## THUNDER4122



## THUNDER4202



## THUNDER4244



**1. Power Fuse** For your convenience, an ATC type fuse was selected for use in all Thunder Amplifiers. For continued protection, replace this fuse only with the same type and value as was originally provided.

Thunder4122 - 20 Amp

Thunder4202 - 30 Amp

Thunder4244 - 25 Amp x 2

**2. Power Terminal** -This is the main power input for the amplifier and must be connected directly to the positive terminal of the car battery for the amplifier to operate properly. See the chart below for recommended cable sizes for each amplifier. Use caution when running this cable through the car. Try to avoid the input RCA cables, antenna cabling, or other sensitive equipment as the large amount of current flowing through this cable can induce noise into your system. It is also very important to have a tight connection to ensure maximum performance.

Thunder4122 - 10 Gauge

Thunder4202 - 10 Gauge

Thunder4244 - 8 Gauge

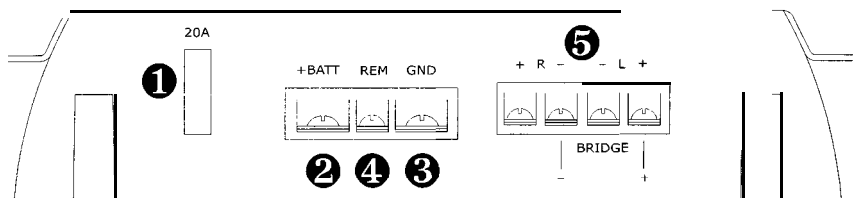
**3. Ground Terminal** - A good quality ground is required for your Thunder Amplifier to operate at peak performance. A short length of cable the same gauge as your power cable should be used to attach the ground terminal directly to the chassis of the car. Always scrape or sand any painted surfaces to expose bare metal where the ground wire will attach.

**4. Remote Terminal** -All Thunder Amplifiers can be turned on by applying 12 volts to this terminal. Typically this voltage is supplied by a wire from the source unit marked "remote" or "electric antenna".

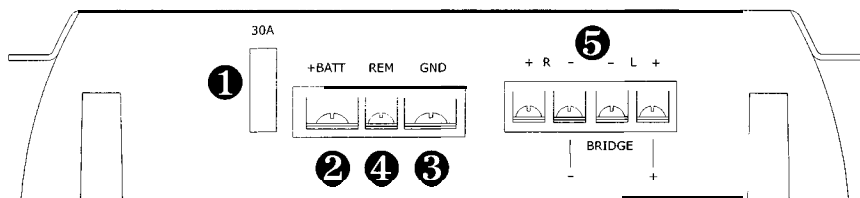
**5. Speaker Terminals** - As shown in the wiring diagrams, be sure to observe speaker polarity through the system. Failing to wire the speakers in proper phase could result in a loss of bass response and/or poor overall sound quality. Caution: Thunder amplifiers are not recommended for loads below 2 ohms stereo or 4 ohms bridged.

# **Output Panel Layout**

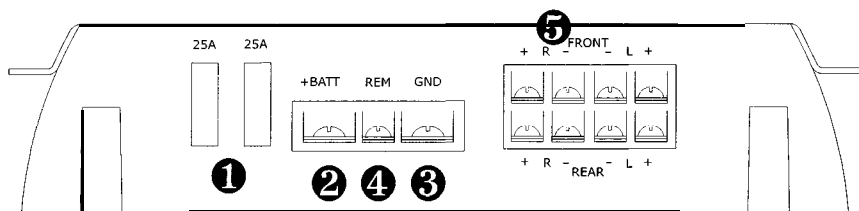
## **THUNDER4122**



## **THUNDER4202**



## **THUNDER4244**



## Adjusting the Gain

1. Turn the gain control on the amplifier all the way down,
2. Turn up the volume control on the source unit to approximately  $\frac{3}{4}$  of maximum.
3. Adjust the gain control on the amplifier until audible distortion occurs.
4. Adjust the gain control down until audible distortion disappears.
5. Follow steps 3-4 for other gain control settings.  
(THUNDER42441)
6. The amplifier is now calibrated to the output of the source unit.

## Definitions of Common Terms

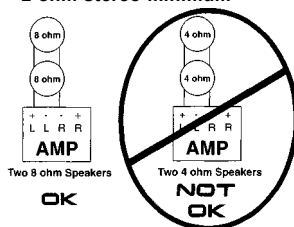
The following *list* of terms with their definitions is offered as help in understanding the set-up and operation of your amplifier.

- 1. Crossover (xover)** • an electrical filter with high-pass or low-pass characteristics that divides the frequency range into playable bands for certain speakers. Subwoofers, mid-bass, midrange and tweeters are all designed to play different frequencies and should do so to avoid damage. The xover point is where the playable frequencies cross from one speaker to the next at -3dB below reference level,
- 2. Full-range** • refers to signals which cover the entire audio frequency span from 20Hz to 20kHz.
- 3. High-pass** • simply put, this blocks lower frequencies which damage smaller speakers, and passes the higher frequencies for smaller speakers like the midrange and tweeter.
- 4. Low-pass** • You got it, this is the inverse of a high-pass. It blocks higher frequencies and passes the playable lower frequencies to the larger speakers, like subwoofers.

## Typical Sneaker Wiring Confiurations

### Stereo Amplifier Bridge Mode Application Impedance Requirement

4 ohm bridge minimum  
2 ohm stereo minimum



- 5. Impedance** • the resistance to the flow of current in an alternating current circuit (such as with music). Line level circuits are typically a high impedance of several thousand ohms, while speaker level circuits are usually a low impedance of a few ohms.
- 6. Line level** -The type of signal produced at the outputs of tape decks, CD tuners, preamplifiers, etc., with a typical value of a volt or less in a high impedance circuit.
- 7. Speaker level** -The type of output that is meant to drive speakers. These signals are sometimes called high level and are usually connected by two conductor speaker wires.
- 8. Signal** • The signal of an audio system is what is heard from the speakers. These signals may be high pass, low pass or full-range.

We don't have enough space for Electronics 101, so if you have a good, bad or amusing question, please call us TOLL FREE at 800-CALL-MTX! (800-225-5689)

## Troubleshooting Guide

*Read this if you wanna be a do-it-yourselfer -- or give us a call at 1-800-CALLMTX.*

| <u>Problem</u>        | <u>Cause</u>                                                                                                                                  | <u>Solution</u>                                                                                                                 |
|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| No LED indication     | No +12V at remote connection<br>No +12V at Power connection<br>Insufficient ground connection<br>Blown power fuse                             | Supply +12V to terminal<br>Supply +12V to terminal<br>Verify ground connection<br>Replace fuse                                  |
| LED on, no output     | Volume on head unit off<br>Speaker connections not made<br>Gain control on amplifier off<br>Signal processing units off<br>All speakers blown | Increase volume on head unit<br>Make speaker connections<br>Turn up gain<br>Apply power to signal processor<br>Replace speakers |
| Output distorted      | Head unit volume set too high<br>Amplifier gain set too high                                                                                  | Lower head unit volume<br>Lower amplifier gain                                                                                  |
| Balance reversed      | Speakers wired L t R reversed<br>RCA inputs reversed                                                                                          | Wire speakers with correct orientation<br>Reverse RCA inputs                                                                    |
| Some balance reversed | Some Speakers wired L t R reversed<br>Some RCA inputs reversed                                                                                | Wire speakers with correct orientation<br>Reverse appropriate RCA inputs                                                        |
| Bass is weak          | Speakers wired out of phase<br>Not using MTX woofers                                                                                          | Wire with correct phase<br>Buy MTX woofers                                                                                      |
| Blowing fuses         | Excessive output levels<br>Amplifier defective                                                                                                | Lower volume<br>Return for service.                                                                                             |

## **Warranty**

All MTX Thunder Amplifiers purchased in the USA are guaranteed against defects in material and workmanship for a period of three years from the date purchased by the end user, if the amplifier is installed by an authorized MTX dealer (one year, if installed by the consumer). This warranty is limited to the original retail purchaser of product. MTX disclaims any liability for the other incurred damages resulting from product defects. Any expenses incurred in the removal and reinstallation of amplifiers are not covered by this warranty. MTX's total liability will not exceed the purchase price of the amplifier. This warranty is valid only in the USA.

To ensure efficiency and full benefit on any warranty claim during the warranty period stated above, MTX requests the return of the warranty registration card, completed in full immediately following purchase. Proof of purchase must be provided at time of warranty claim. If there is no proof of purchase provided with the warranty claim, MTX reserves the right not to honor the warranty set forth above. Therefore, labor and parts may be charged to you.

This warranty does not apply to product exterior and cosmetics. Misuse, abnormal service or handling, improper alterations or modifications in design or construction void this warranty.

No sales personnel of the seller, or any other person is authorized to make any warranties other than those described above or to extend the duration of any warranties on behalf of MTX beyond the time period described above.

For Warranty Inquiries, please call:

1-800-225-5689

1-602-438-4545

MTX

4545 E. Baseline Rd.

Phoenix, Arizona 85040

Register Warranty On-line:

[www.mtxaudio.com](http://www.mtxaudio.com)

**MTX** THUNDER4244



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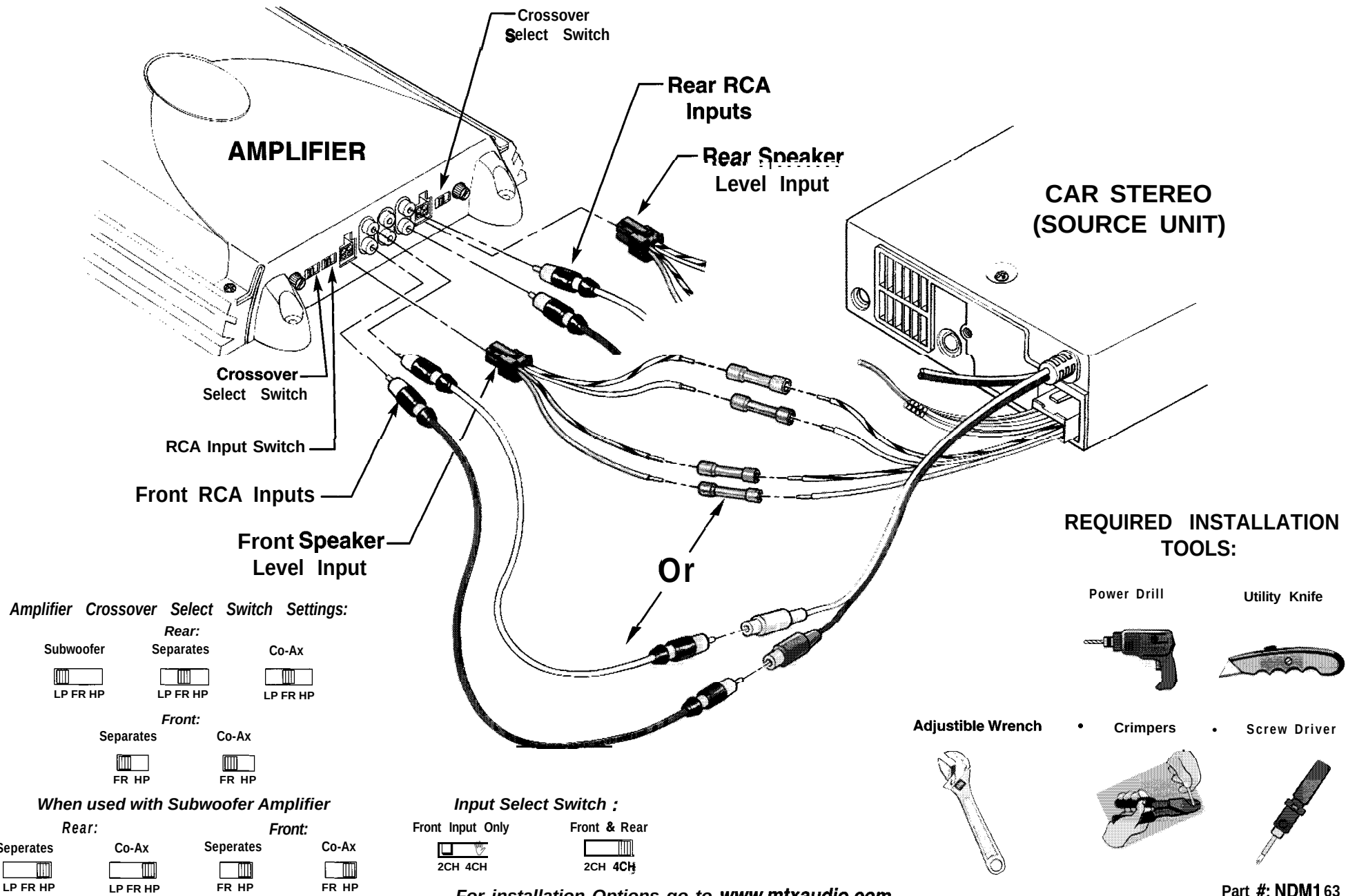


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[www.mtxaudio.com](http://www.mtxaudio.com)

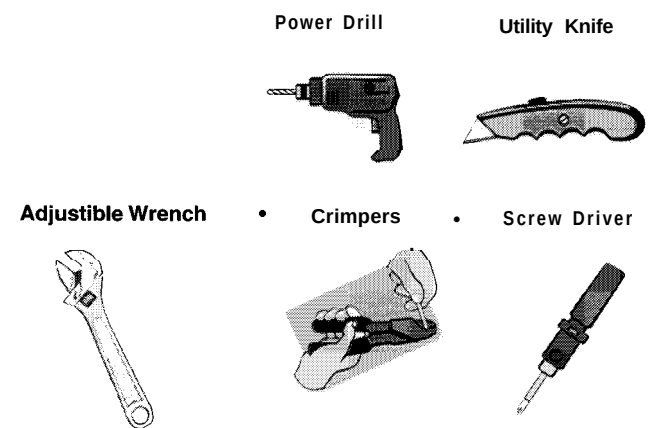


# THUNDER4244

## Amplifier Input Connections



### REQUIRED INSTALLATION TOOLS:



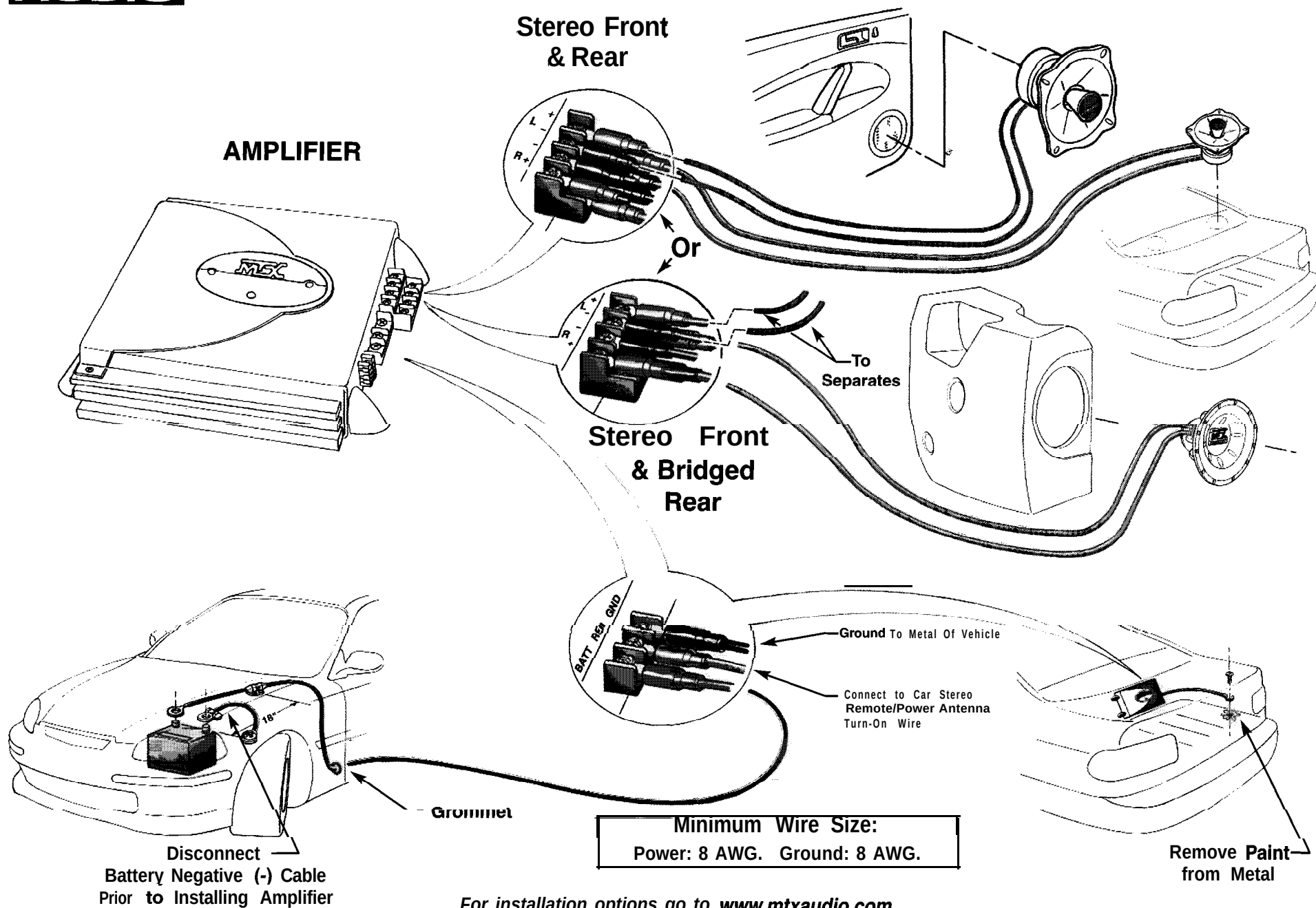
For installation Options go to [www.mtxaudio.com](http://www.mtxaudio.com)

Part #: NDM163



# THUNDER4244

## Amplifier Output Connections



For installation options go to [www.mtxaudio.com](http://www.mtxaudio.com)

FIRST  
CLASS  
STAMP  
HERE



**Attn: Warranty Processing Center**  
**4545 E. Baseline**  
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